CLAIMS

What is claimed is:

1. A 1 x 2 planar optical waveguide signal splitter in the form of a Y-branch comprising a trunk and two branches conjoined thereto to form a vertex, said branches diverging from one another, each of said branches having a surface, at least one of said branches being provided with a heating means, said heating means being disposed with respect to said at least one of said branches such that upon activation of said heating means, a spatially non-uniform heat flux will be incident upon said at least one of said branches.

2. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein each of said branches further comprises an outer edge and wherein further said spatially non-uniform heat flux will be incident preponderantly on said outer edge of said at least one of said branches.

3. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein said vertex is characterized by an angle of 0.05-4°.

4. The 1 x 2 planar optical waveguide signal splitter of Claim 3 wherein said vertex is characterized by an angle of 0.4-1°.

5. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein said heating means is of uniform cross-section.

6. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein said heating means is of non-uniform cross-section.

7. The 1 x 2 planar optical waveguide signal splitter of Claim 1 further comprising a polymeric core.

8. The 1 x 2 planar optical waveguide signal splitter of Claim 7 wherein said polymeric core comprises a polymer selected from the group consisting of polyacrylates, polyfluoroacrylates, polychloroacrylates, polymethacrylates, and polycarbonates.

9. The 1 x 2 planar optical waveguide signal splitter of Claim 8 wherein the polymer is a polyfluoroacrylate.

10. The 1 x 2 planar optical waveguide signal splitter of Claim 1 wherein said heating means is an electrical resistance heater.

11. The 1 x 2 planar optical waveguide signal splitter of Claim 10 wherein said electrical resistance heater is of non-uniform cross-section.

12. The 1 x 2 planar optical waveguide signal splitter of Claim 11 wherein said cross-section has a minimum area, said heater being disposed such that the distance between said vertex and said minimum area is a minimum.

13. A method for splitting an optical signal, the method comprising:

(a) disposing in the propagation path of a propagating optical signal a 1 x 2 planar optical waveguide signal splitter in the form of a Y-branch comprising a trunk and two branches conjoined thereto to form a vertex said branches diverging from one another, at least one of said branches being provided with a heating means, said heating means being disposed with respect to said at least one of said branches such that upon activation of said heating means, a spatially non-uniform heat flux will be incident upon said at least one of said branches; and

(b) energizing said heating means to effect the imposition of a spatially non uniform heat-flux upon the surface of said at least one of said branches in order to effect a rise in the temperature of said at least one of said branches an amount sufficient to cause a change in the relative intensity of the propagating optical signal in the two said branches.

14. The method of Claim 13 wherein each of said branches further comprises an outer edge and wherein further said spatially non-uniform heat flux is imposed preponderantly on said outer edge of said at least one of said branches.

15. The method of Claim 13 wherein said heating means is of non-uniform cross-section.

16. The method of Claim 13 wherein said vertex is characterized by an angle of 0.05-4°.

17. The method of Claim 16 wherein said vertex is characterized by an angle of 0.4-1°.

18. The method of Claim 13 wherein said rise in temperature is sufficient to effect a digital optical switching function.

19. The method of Claim 13 wherein said rise in temperature is insufficient to effect a digital optical switching function, so that said 1 x 2 planar optical waveguide signal splitter serves as a variable optical attenuator.

20. The method of Claim 13 wherein said 1 x 2 planar optical waveguide signal splitter further comprises a polymeric core.

21. The method of Claim 16 wherein said polymeric core comprises a polymer selected from the group consisting of polyacrylates, polyfluoroacrylates, polymethacrylates, and polycarbonates.

22. The method of Claim 21 wherein the polymer is a polyfluoroacrylate.

23. The method of Claim 13 wherein said heating means is an electrical resistance heater.

24. The method of Claim 23 wherein said electrical resistance heater is of non-uniform cross-section.

25. The method of Claim 23 wherein the highest heat flux is imposed at a minimum distance from said vertex.

26. A digital optical spatial switch comprising the 1 x 2 planar optical waveguide signal splitter of Claim 1.

27. A variable optical attenuator comprising the 1 x 2 planar optical waveguide signal splitter of Claim 1.